LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA

MASTER

ECONOMICS AND PUBLIC POLICIES

MASTER'S FINAL WORK

DISSERTATION

SOCIAL MOBILITY IMPACT EVALUATION: ANALYZING THE PROUNI PROGRAM

MARIA JULIA MOURA

OCTOBER - 2019

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ABSTRACT

This dissertation analyzed the intergenerational social mobility linked to the *University for All* program (ProUni *Programa Universidade para Todos*), with the main goal to enhance the accessibility to Higher Education for low-income students through the provision of partial and full scholarships on private Universities in Brazil. The program launched in 2004 under Lula's presidency was studied applying the methodology developed by Chetty et al. (2017)[1]. The intergenerational income mobility is analyzed using the declared household income of ProUni's full and partial scholarship holders. Upward mobility is defined as the percentage of students who attain to achieve higher incomes when compared to their parents. However, the mobility index does not directly infer a causal relationship between the income pre and post-program. The results suggest that ProUni has a positive effect on promoting social mobility in Brazil, especially for those who received full scholarship.

KEYWORDS: Income Mobility, Intergenerational Mobility, Brazil, Educational System, ProUni

JEL CODES: D31, I24, I23

‘

[1] Chetty, R., Friedman, J. N., Saez, E., Turner, N., & Yagan, D. (2017). Mobility report cards: The role of colleges in intergenerational mobility, NBER Working Paper n. 23618. National Bureau of Economic Research (NBER). https://www.nber.org/papers/w23618.pdf

RESUMO

Esta dissertação analisou a mobilidade social associada ao Programa Universidade para Todos (ProUni Programa Universidade para Todos), com o objetivo principal de melhorar a acessibilidade ao ensino superior para estudantes com baixo rendimento através da concessão de bolsas parciais ou integrais em universidades privadas do Brasil. O programa lançado em 2004 sob a presidência de Lula foi estudado aplicando a metodologia desenvolvida por Chetty et al. (2017)[2]. A mobilidade em termos de rendimento é analisada usando o rendimento do agregado familiar declarada dos estudantes beneficiários (bolsistas ou bolseiros) do ProUni. A mobilidade ascendente é definida como a percentagem de estudantes que atingem rendimentos superiores aos dos seus pais. No entanto, o índice de mobilidade não permite inferir uma relação causal direta entre o rendimento pré e pós-programa. Os resultados sugerem que o ProUni tem um efeito positivo na promoção da mobilidade social intergeracional no Brasil, em particular para aqueles que receberam bolsa integral.

[2] Chetty, R., Friedman, J. N., Saez, E., Turner, N., & Yagan, D. (2017). Mobility report cards: The role of colleges in intergenerational mobility, NBER Working Paper n. 23618. National Bureau of Economic Research (NBER). https://www.nber.org/papers/w23618.pdf

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ABBREVIATIONS AND ACRONYMS

BRL- Brazilian Reals

ENADE - *Exame Nacional de Desempenho dos Estudantes* [National Exam of Student Performance]

ENEM - *Exame Nacional do Ensino Médio* [National High School Exam]

FIES – *Fundo de Financiamento Estudantil* [Student Financing Fund]

FIES - Financing Fund for the Higher Education Student

FUNDEB – *Fundo de Manutenção e Desenvolvimento da Educação Básica* [Fund for the Maintenance and Development of Basic Education and for the Appreciation of Education Professionals]

IBGE – *Instituto Brasileiro de Geografia e Estatística [*Brazilian Institute of Geography and Statistics]

IDB - Inter-American Development Bank

INEP – *Instituto Nacional* de *Estudos e Pesquisas Educacionais Anísio Teixeira [*National Institute of Educational Studies and Research]

IPEA – *Instituto de Pesquisa Econômica Aplicada* [Institute of Applied Research]

LAC - Latin America and the Caribbean

MEC - *Ministério da Educação* [Ministry of Education]

OECD - Organisation for Economic Co-operation and Development

OLS - Ordinary Least Squares

PNAD - *Pesquisa Nacional por Amostra de Domicílios* [National Household Survey Sample]

PNE – *Política Nacional de Educação* [National Policy on Education]

PROUNI or ProUni - *Programa Universidade para Todos* [University for All Program]

RAIS - Yearly Social Information Report

SAT - Scholastic Assessment Test

U.S.A. - United States of America

UFPE – *Universidade Federal de Pernambuco* [Federal University of Pernambuco]

USD - United States of America Dollar

1. INTRODUCTION

Evidence points to a strong correlation between higher education access and social mobility increase. In a study conducted by Deming and Dynarski (2009), the authors conclude that a man holding a B.A degree in 2003 earned 60% more when compared to those with only high school degrees in the USA. It is widely accepted (Chetty at al. 2017) that higher education is a pathway to upward income mobility. However, access to higher education by itself is an effective tool to promote social mobility? In this context, it is vital to produce an in-depth study about the efficiency of programs enabling access to higher education for students with a low-income background. Huijsman et al. (1986) confirm that factors like per capita income have a high impact on the enrolment rate into Higher Education. Leading to the conclusion that programs designed to minimize the effects of income are important tools to enable low-income students to access universities.

Further, taking into consideration the work of Federiksson (1997), which also points to a positive impact of public grants and education loans on the enrolment rate of graduates in Sweden. Moreover, a study conducted by the Poverty Action Lab (Duflo et al. 2017) also indicated that removing school fees produced gains on educational attainment, skills knowledge, and preventive health since scholarship winners were more likely to pursue tertiary education The results suggest that scholarship winners had higher earnings on average: 61 percent of scholarship winners reported any gains in the past month, compared to 56 percent of non-winners.

From a complementary point of view, Deming and Dynarski (2009) also detect a shift in the labor market, attesting that a college degree is on present days a vital tool to pursuit a middle-class lifestyle. While in 1972, a typical earning for a full time male high school graduate was 45000 USD, in 2005, it dropped to 30000 USD. On the other hand, real earnings for the college-educated remained steady. This trend means that college education has a growing relevance to financial well-being. In the USA, children coming from the highest income families end up 30 percentiles higher in the earnings distribution on the average than those from the lowest-income families.

In line with the North American trend, in Brazil income and education are also strongly associated. According to the data collected from the National Household Survey (PNAD) for 2014, 36.4% of students from public universities are part of the 20% wealthiest Brazilians

while on private universities this rate is of 40.9%. It is important to stress that in 2004 this ratio was 55% and 68.5% respectively. The 20% poorest Brazilians represented 1.7% of the total undergraduates on the public network in 2007, reaching 7.2% seven years later. (IBGE 2014).

Due to Brazil's income inequality as illustrated by the PNAD's numbers and aiming to expand the access to Higher Education between low incomers, the University for All Program (PROUNI) was launched by the Brazilian government in 2004, during Lula's presidency.

The present work aims to answer the question: Is the ProUni program an effective tool to increase social mobility? In order to appropriately address this question, the paper will apply the methodology proposed by Chetty et al. (2017) in the "Mobility report cards: the role of Colleges in Intergenerational Mobility" article. Through the use of :(i) an OLS regression to indicate the relationship (if any) between the scholarship holders' income pre and post-program participation; (ii) a mobility index to measure ProUni's success on promoting intergenerational mobility. The research will use the database from the National Exam of Student Performance (ENADE)'s microdata for the period 2009 to 2014, excluding year 2010 because data are not available. The national exam ENADE is a yearly test taken by undergraduate students in their first or their last semester, which serves to evaluate Higher Education course quality. The present study will also use data from the National Household Survey Sample (PNAD) survey to estimate the household income distribution of the Brazilian population. This analysis contributes to the development of an empirical framework for the study of ProUni's micro-data.

After Introduction, this thesis is divided into five sections. Section 2, discusses the main concepts and literature about the impact evaluation studies and social and intergenerational mobility estimation methodologies. Section 3, describes and exams the institutional framework and the Brazilian educational system, in particular at University level. In Section 4, the data used in the empirical analysis is presented and discussed. Section 5 introduces the social mobility index as well as the results of the OLS regressions. Finally, in Section 6, main conclusions and future research steps are presented.

2. CONCEPTUAL FRAMEWORK

Pomeranz defines impact "*as the difference between the outcome that happened after treatment, and what would have happened without the treatment (the counterfactual).*" (Pomeranz 2015, p.3)

Usually, impact evaluations also use control groups to estimate the counterfactual while using treatment groups to designate those who will receive the treatment. Generally, the term treatment is used to refer to the policy in which the impact will be analyzed. The effect is the result directly attributed to the exposure to the treatment. On the other hand, the counterfactual is what would have happened with the participant case the program had not existed. The most frequently used evaluation models act to verify the difference between observed results with program implementations. Otherwise, the difference in models relies on the way used to measure the counterfactual. In this paper, it was not possible to precisely estimate the counterfactual. The counterfactual is here assumed as the pre-program family income (Tolmie et al. 2011).

For this work, the methodology used to measure the relationship among the income of ProUni's participants and their parent's income is an Ordinary Least Squares (OLS) regression. In a broader sense, regressions are used to predict the values of a dependent variable, using a straight-line equation, measuring the influence between independent and dependent variables. It is mostly used for understanding how a predictor variable influences a dependent variable in terms of both the direction and the strength of the influence.

The OLS is a form of regression analysis with a continuous dependent variable and a single or several independent or predictor variables where the line of best fit is defined using the ordinary least squares criteria. OLS method minimizes the value of the sum of the squares of the differences (residuals) between the actual data point and the predicted score according to the model corresponding points on the straight line (Tolmie et al 2011).

On the other hand, the cost-effectiveness framework to measure the results of the ProUni program will be aligned with the proposed design of the Abdul Latif Jameel Poverty Action Lab (J-Pal)[3]. Through the tools discussed by Dhailiwal et al. (2012) it can be calculated the

[3] https://www.povertyactionlab.org/

investment ratio of ProUni against its impact. Within this framework, the program cost can be analyzed towards alternative solutions that would fulfill the same objectives at a lower cost. This tool supports the evaluation of resource allocation efficiency.

The cost-effectiveness analysis acts in a way to complement the impact evaluation. While the impact evaluation will measure the fulfillment of project objectives, the cost-effectiveness methodology will evaluate if the ProUni program in terms of impact and costs was the best program to be implemented (against the other alternatives). The advantage of using cost-effectiveness analysis is that distinctly of cost-benefit analysis, it is not necessary to assume monetary values for the generated benefits (Dhailiwal et al 2012). Therefore, benefits are extremely complex to be entirely measured on educational outcomes analysis. To evaluate the total program impact the following equation is used:

Total impact of the program= Impact (per unit) x Sample size x Program duration

One of the most compelling articles on this field of educational impacts on intergenerational mobility results from the work of Chetty et al. (2017), which analyses selected USA's universities concerning their impact on income improvement of the bottom quintile of the income distribution. The article seeks to answer which colleges in the USA are more efficient in ensuring intergenerational social mobility. The paper presents interesting points to be explored and compared to the Brazilian case. First, in terms of methodological tools assembled on this particular survey, the upward mobility rate developed by the authors has broad applicability. They measure "each college's upward mobility rate as the fraction of its students who come from the bottom quintile [Q1] of the income distribution and end up in the top quintile [Q5]" (Chetty et al. 2017, p.2). Chetty et al. (2017) combine several data to build this measures of intergenerational mobility and each college's mobility rate is the product of its low-income access, the fraction of its students who come from families in the bottom quintile (Q1), and its success rate, the fraction of such students who reach the top quintile (Q5). As a formula it can be represented as: *mobility rate = access × success rate,* or using quintiles (Chetty 2017, p. 23):

$$P(\text{Child in Q5 and Parent in Q1}) = P(\text{Parent in Q1}) \times P(\text{Child in Q5} \mid \text{Parent in Q1})$$

The findings reached by the authors point to alternative views about the results usually expected. Although Ivy Plus colleges displayed the highest success rates, a selection of less competitive universities like the State University of New York at Stony Brook had 51% of the bottom quintile students reaching the top quintile (Chetty et al. 2017).[4]

Moreover, that study presents a series of tools and treatments that are a relevant contribution to our study. The method used by Chetty et al. (2017) was applied in an adapted format to the Brazilian case. For example, the authors made use of the available data from federal income tax returns in USA, which was adapted to the Brazilian case to the IBGE's national household income survey (PNAD) already treated by the IPEA. Also the data extracted from the Department of Education from college attendance, students earnings in their early thirties, and their parents' household incomes in the case of USA, is substituted in the Brazilian case by the data of ENADE's information about: family income, number of household members, high school type (private/public), and kind of ProUni scholarship received (partial or total).

Following Chetty et al. (2017) a study of the Inter-American Development Bank (IDB) produced a technical note evaluating intergenerational social mobility at the Brazilian University, the Federal University of Pernambuco (UFPE) (Bustelo et al. 2017). In that technical note, the family income of UFPE's students was collected from a UFPE administrative data set, unlike our model that uses the ENADE data. However, it was also used the PNAD's data to construct the income percentile distribution of the Brazilian population. Similarly, to Chetty et al. (2017), Bustelo et al (2017), had access to an administrative database, the RAIS, a national longitudinal data set containing information about the formal labor market, from 2014. They matched it with the sample of students who were admitted to UFPE in 2005-2006. They successfully matched 85% of the 2005/2006 UFPEs students with the 2014 RAIS. Bustelo et al (2017) developed two indexes: (i) one for the transition mobility that calculates, as used in our study, the mobility of low-income students to access the top earnings bracket; and (ii) the university index which counted for the overall mobility of low-income students achieved by the university. Bustelo et al (2017)

[4] In Chetty et al. (2018a and 2018b) the method is developed in order to study the impacts of neighborhoods on mobility. However, information is not available to study the Brazilian case in that perspective.

study also concluded, converging to Chetty et al (2017)'s results, that the probability of reaching the highest quintile earnings is higher for high-income students than the probability of shifting from the lowest percentile to the highest income percentile. However, this does not mean that there is no intergenerational mobility. Hence, the researchers concluded that UFPE's mobility rate is 2,8%.

Although some literature, as Chaves (2015) criticizes the ProUni program for its focus on private Universities deviating investments from public ones, the World Bank report attests that Educational expenses are still concentrated on public Universities (Banco Mundial 2017). On the other hand, Rosetto & Gonçalves (2015) conducted a study about the beneficiary student profile of federal aid programs in Brazil, using a logit model, evaluating the probability of the young population to pursue Higher Education access programs. The authors reached the following findings: men, when compared to women, are 17% less likely to receive federal aid; students with income between 3 to 6 minimum wages are 13% less likely to receive federal assistance than those with income up to 3 minimum wages; higher incomes are associated with a minor probability of receiving student aid. Moreover, students whose mothers hold higher education certificates present a greater probability of being non-aid receivers. The study brings to discussion the fact that ProUni students had fewer chances to be enrolled at private high schools and are among those who worked more during the University. Additionally, they point difficulties in analyzing students' income due to the impossibility to separate the family income from the work gains of each student.

Rosetto & Gonçalves (2015) also concluded that despite the advances to increase access to Higher Education for the low-income population, the policies are still fragile to reach this population. They propose a model that does not establish a clear relationship between income level and the probability of participating in ProUni, in FIES, or in other affirmative actions. However, the references presented by them supported the improvement of the socio-economic profile of ProUni students.

In brief, the review of the literature here presented, mainly focusing on empirical studies, indicates a strong correlation between Higher Education and upward mobility. In this context, this research aims to deepen the study about the ProUni program and conclude about its role as an effective and efficient tool to foster intergenerational social mobility, thus impacting on the Brazilian socio-economic inequality structure.

3. INSTITUTIONAL BACKGROUND

Brazil, like other developing nations, is characterized by its devastating inequality depriving the low-income population of access to good quality education. In a recent World Bank report, it was acknowledged the increase in public expenses into education in Brazil. The higher education system accounted for 31% of the education expenses in 2015 (Banco Mundial 2017). It is not high when compared to OECD countries (38% at OECD level). However, when the data is disaggregated into categories, there are significant disparities between the costs of students for public and private institutions (Banco Mundial 2017): Brazilian public institutions' expenses with students are two or even three times higher than private institutions' expenses.

In recent years, the discussions about the progressivity of taxes has gained relevance and the pressing urgency to deal with such a problem (Pikkety 2017). Thus, the World Bank report addresses the current discrepancies and inefficiency of the Brazilian fiscal structure pointing out that the current tax structure is a burden to the low-income population while conceals many privileges for high incomers. In this context, the higher education expenses in Brazil are still very regressive. In 2002 no college student belonged to the 20% poorest group of the population, and only 4% were part of the 40% poorest (Banco Mundial 2017). The public expenses on higher education mostly benefit the higher-income families because 65% of the students belong to the 40% of higher-income households.

Another interesting feature of Brazil is that public universities account for only 25% of enrollment on Higher Education, and in 2015 the Brazilian government expended approximately 0,7% of its GDP on higher education, especially through transfers for federal universities and student loans. Since 2010 the federal budget dedicated to federal universities increases at a real average annual rate of 7%. Considering the yearly growth of 2% on the enrollment rate, this represents an annual increase of 5% real-term expense per student from federal universities (Banco Mundial 2017).

3.1 - Brazil Education System

Brazil is one country of continental-scale known for its social inequality structure, which also translates into regional development imbalance. In a broader sense, the Brazilian educational system is highly decentralized. The Ministry of Education (MEC) establishes the

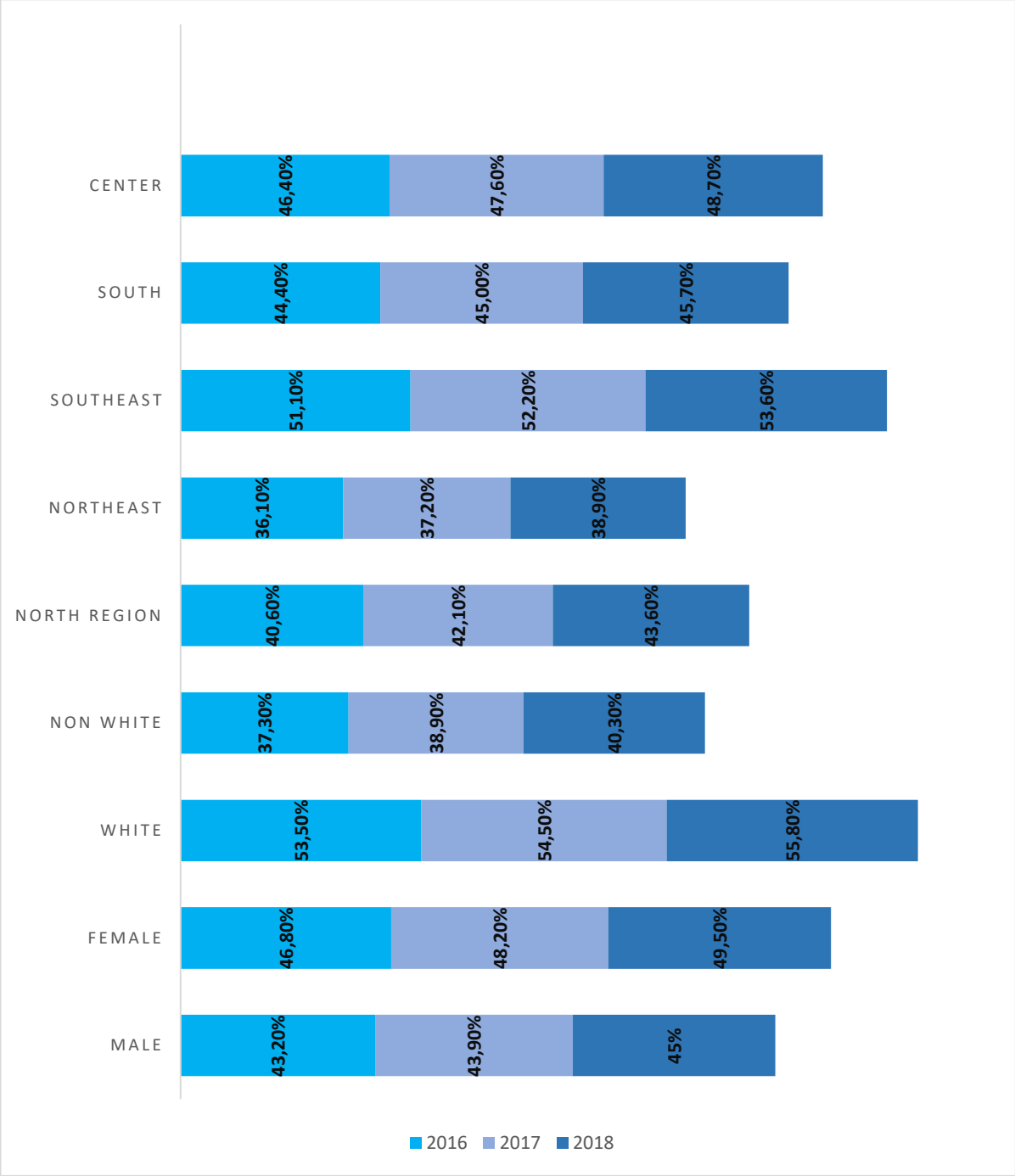
principles, guidelines, and coordinates the national educational policy. States and Municipalities are the main responsible for basic education in Brazil. The basic education is divided into three levels: 1) pre-primary which deals with children from 0 to 5 years old; 2) primary school which covers the 6-14 years old range, and finally 3) secondary schools that covers the young population from 15- 17 years old. In this decentralized system, the pre-primary and primary education are, according to the Brazilian Constitution, under the responsibility of the Municipalities. The States answers for secondary school. The federal government is only responsible by Higher Education.

In general, that are two main instruments, one financial and other administrative, that drive the education policy in Brazil. The financial instrument is the Fundo de Manutenção e Desenvolvimento da Educação Básica e de Valorização dos Profissionais da Educação (FUNDEB), launched in 2006, aiming to improve the balance of the education funding system. It established a minimum per-student expenditure for the basic education, and if States and Municipalities are not able to provide that minimum, the Federal government would cover the difference. Brazilian public education is tuition-free, and the school receives funding depending on the number of enrolled students. Each State and Municipality has its own Education Secretary. The administrative instrument of the education policy is the National Policy on Education (PNE). The plan was established in 2014, and act as a guide for the education management. It established 20 policy goals to be achieved in 10 years. The PNE works like a pluriannual plan and supports the development of state and municipal educational plans. Three of the most critical points are: (i) the increase of the basic education quality at all levels; (ii) the expansion of enrolment and school performance rates on Secondary Education, especially among vulnerable populations; and (iii) a 10% rise in GDP investment on public education.

The Brazilian education system reflects the inequality structure in its finest way. The last PNAD on Education from 2018 IBGE (2018) pointed out that although recent improvements in school attendance and illiteracy rates, the Brazilian population is still poorly schooled. For instance, in 2018, only 49.5% of females and 45% of males aged 25+ years have concluded the basic mandatory education (primary school) (Figure 1). There is also a contrast between the white and the non-white population and significant differences across country regions (Figure 1). The higher values are in Southeast (with 86 million of total residents) and the

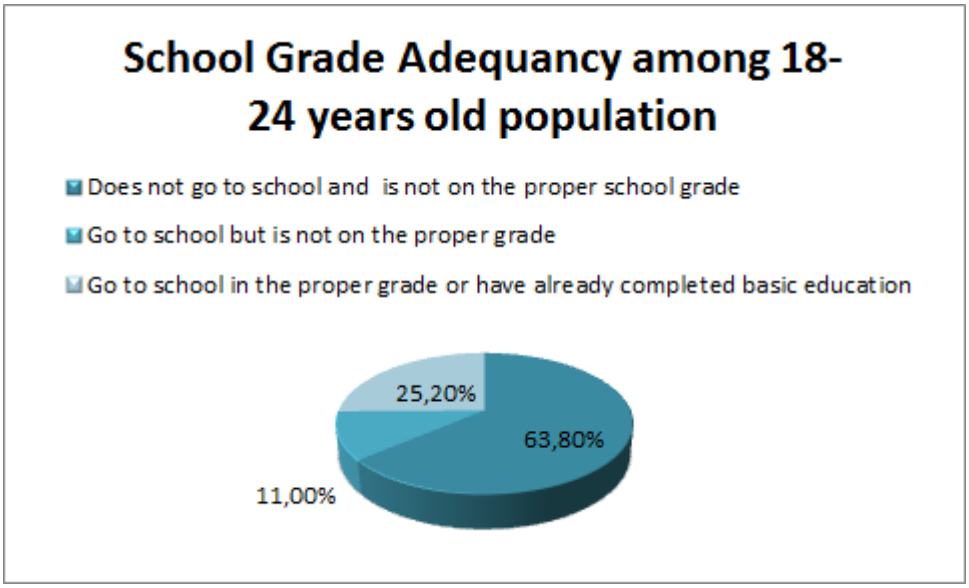
lowest values are in the second most populated region, the Northeast (57 millions of total residents)

FIGURE 1 - PERCENTAGE BY GENDER, RACE, AND REGION OF POPULATION (25+ YEARS OLD) THAT CONCLUDED THE BASIC EDUCATION, 2016, 2027 AND 2018



Source: IBGE(2018); The five regions North, Northeast, Southeast, South and Center have as main population municipality respectively Manaus, Salvador, São Paulo ,Curitiba, and Brasília.

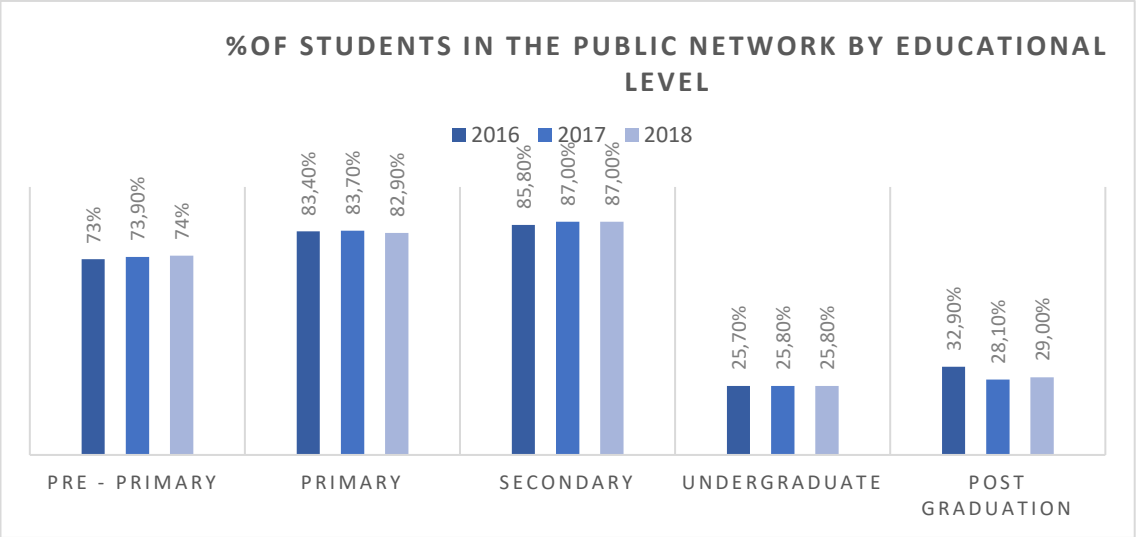
FIGURE 2 -SCHOOL GRADE ADEQUACY AMONG 18-24 YEARS OLD POPULATION



Source: IBGE (2018)

On the school level, in opposition to the higher education level, most of the enrolled students are in the public network. The entrance rate highlights the dimension of its impact. The rate represents the population percentage who concluded the Secondary Education and who have successfully enrolled in Higher Education, regardless of having completed their studies level or not. Following the PNAD survey, this rate was 43.2% in 2017, from which 35.9% of students came from public schools, and 792% were private school pupils (IBGE 2018). However, 67.7% of the High School graduates were from public schools, while 28.2% are from the private ones. These numbers reveal the enormous gap between the opportunity of access for the low-income population compared with the high income population. As illustrated in Figure 2 and Figure 3. The current situation shows that there are significant challenges for equalizing the access to the Higher Education System.

FIGURE 3 - PERCENTAGE OF STUDENTS IN THE PUBLIC NETWORK (BY EDUCATIONAL LEVEL), 2016, 2017, 2018



Source: IBGE (2018)

3.1.2 - Higher Education Structure

To better understand the Brazilian Higher Education structure is essential to stress that the private sector has expanded more intensively since the ’90s. In that period, new universities were created with more business-oriented approach in opposition to the public universities' strictly academic. On these new universities, little research is done, and they are characterized by an impressive expansion rate due to the use of aggressive marketing campaigns (McCowan 2007). Before the 1990s, the traditional private Universities were characterized, in general, by their religious affiliation and by a non-private character sharing a similar ethos of the public ones. In short, although recent efforts to improve the higher education access to disadvantaged Brazilian populations, the country still has a long path to follow. Brazil public higher education institutions are noticeable for a highly competitive admission process, which favors high-income students who completed their studies in private schools.

Thus, to tackle the emerging problems of this inequality of access, the federal government in 2004 launched the ProUni program, which complemented other ongoing initiatives as the FIES, and affirmative policies. The next section will be dedicated to detail and explain the focus and the rationale of Higher Education.

3.2 FIES

In a broader sense, the FIES is a financing program, which provides loans with reduced rates to those interested in the pursuit of studies on private Universities. The program was created in 1999 as a temporary measure and then in 2001 enacted on Law (number 10.260/2001). Through FIES, a particular case of student loan, the federal government takes responsibility for expenses regarding tuition costs of student's enrollment throughout their whole undergraduate life. In accordance with the profile and interest of the student, the financed share (loan)varies from 50% to 100% of the total fee. The reimbursement of the funding considering a fixed interest rate of 3.4%, begins as the course ends. Concerning eligibility criteria, the program is designed for students with gross income per family member of a maximum of 20 minimum wages. Priority is given to the top performers on ENEM's exam, and the funding can be used in addition to ProUni partial scholarships.

3.3 - Affirmative Action Policy

On the other hand, the affirmative action policy, established in 2012 by the Law number 12.711/2012, ensures 50 % of vacancies in public universities for those who attended public high schools. It also establishes a requirement that universities select those students taking into consideration the minimal percentage of the black, inter-racial, and indigenous population in each State following the IBGE's census.

3.4 - ProUni Program

The Law nº11.096 enacted the ProUni program on January 13, 2005. The main goal of the referred program is to enhance the accessibility to Higher Education for low-income students through the provision of partial or full scholarships on private Universities. On the other hand, the private higher education institutions called "*Instituições de Ensino Superior (IES)*" receive fiscal benefits and tax exemption of federal contributions. Some of the benefits granted by the Brazilian government are: income tax[5], net revenue contribution for social security, social security financing contribution, and social integration program contribution (Gonzaga and Oliveira 2012).

[5] The original income tax name is: *Imposto de Renda das Pessoas Jurídicas (IRPJ).*

The ProUni candidates are pre-selected in accordance with their ENEM performance. Besides, the maintenance of the scholarship is bounded by their academic performance. The program provides three types of grants: (i) full scholarship for those students with family income of up to one and a half minimum wage per member; (ii) partial scholarship of 50% for those students with family income of up to three minimum wages per member; and (iii) full scholarships for teachers of the public primary education network to conclude higher Licenciatura[6] courses. It is important to stress that scholarships awarded also must fulfill their high school studies on public schools or have to be of full scholarship holders in private schools. Until 2014, the program granted 1.46 million scholarships, among which 70% were full ones, MEC (2014).

4. DATA COLLECTION

4.1 - Sample Definition

Some key differences between this study sample and the Chetty et al. (2017) should be highlighted as well as some limitations of the data available for the Brazilian case research.

First, the data available at the ENADE's form was not as complete as the individually identified data from tax returns and the administrative data from the USA's Department of Education on college attendance, parents' household income, and students earning in their early thirties found on Chetty et al. (2017).

Secondly, it is important to stress that information individually identified is not publicly available in Brazil given privacy legislation[7]. For this reason, in this paper, the parent's household income was assumed, for ProUni program full holders, as being equal to 1.5 one minimum wage per family member. This assumption is consistent with the ProUni program requirement. For example, the parent's household income[8] in a family with three members

[6] In Brazil there is a distinction between *Licenciatura and Bacharelado* majors, typically *Licenciatura* courses are targeted for Educators/Teachers who intend to acquire Pedagogical skills and have a 5 year duration.

[7] The Brazilian Legislation on data protection was enacted in 2018. However, the law forecasted a two year adaptation period for all organizations to comply with the new Legislation requirements.

[8] For ProUni program the household concept is the nuclear group which encompass all members responsible for the expenses or earnings of that family unit. (PROUNI,2019)

(the father and the mother of the student), in 2014, when the minimum wage was R$ 724[9], is 2172 R$ (=724 x 3).

Third, the household income at the end of the program was estimated using the informed household income on ENADE's socio-economic questionnaire filled by all the enrolled students. Additionally, the total number of household members was taken into account to better estimate a proxy for the income per capita within the household.

Fourth, the period under study is 2009 to 2014, excluding the year 2010. The 2010 year was not used in this study due to a lack of information on IPEA's data about the income distribution for this specific year. The year 2009 was chosen as a start year since the first scholarships were given in 2005, and as the Undergraduate cycle in Brazil has a minimum duration of 4 years (it varies according to the course selected), the first ProUni class had graduated in 2009.

Fifth, during the data selection it was prioritized the addition of an extra filter to avoid possible sample contamination. For 2008, 2009, 2013, and 2014 it was decided to work only with a sub-sample of individuals who were the main responsible for their household income (as answered in the ENADE form).

Sixth, all the selected data excluded the first semester's incumbents.

Seventh, for comparison reasons and to respect the framework proposed by Chetty et al. (2017), it was taken for granted that the ProUni's half (50%) scholarship (partial scholarships) are representatives of a higher income quintile compared with the ProUni full scholarship (100%) students. Due to the reason that ProUni's 50% grant holders have a gross family income of 3 minimum wages per family member, which places them at the highest quintile in earnings distribution in Brazil for the selected years.

The total number of ProUni's scholars from 2005 to 2015 was 2.556.200 (IPEA, 2019) from which generated a total sample size for the five year period (2009 to 2014, excluding 2010) analyzed is of 130,123 individuals.

[9] The currency in Brazil is the Brazilian Real R$. The US Dollar to Brazilian Real average exchange Rates for the year 2014 was 2.3588. The minimum wage per month in 2014 in Brazil, 724 R$ (Table III), was equivalent to 307 dollars.

The share of full scholarships was 72% for 2009, 70% for 2011, 68% for 2012, 66%for 2013 and 67% for 2014. In our sample, the number of ProUni's full scholarship students is 15,191 for 2009 (first year of completion), and 6,048with partial scholarship. In 2009, 1,335 corresponds to those full scholarship holders who are the main responsible for their home earnings, and 443 in the Annex correspond to partial scholarship holders who are the main responsible for their home earnings.

Table I for each year contains, in three blocks, the following information: (i) the number of students who achieve the top 20% of the upper distribution, i.e. the top quintile (Q5); (ii) the general upward mobility, those students who achieve higher earnings when compared to their parents, (iii) the social mobility associated to ProUni's partial scholars, and (iv) the number of ProUni's full scholarships holders that maintained the same income of their parents.

The detailed data used for the index calculation can be found in the Annex, where N indicates the total number of individuals accounted for each matching line for each year.

4.2 Income Quintiles and National Minimum Wage

The income quintiles were estimated using the IPEA study on income household distribution for the selected period. It is important to remind that income distribution values for 2010 were not available (as previously referred), and this data missing is not explained in IPEA's nor IBGE's papers. T compute the mobility index, the information in Table I is used following different steps: first: the number of parents in the third quintile of income distribution (which approximately corresponds to one and a half minimum wage), second it was used the number of full scholarship students in the top quintile, and finally, the data from IBGE about the income distribution on private Universities was used to calculate the access variable. This rate was calculated for each year separately

T= access x (Q1/Q3)

T_{2009} = 12,2% x (10/15191) = 0,01%

T_{2011} = 13,6% x (384/13139) = 0,4%

T_{2012} = 14,4% x (538/31958) = 0,24%

T_{2013}= 16,3% x (169/8885) = 0,31%

T_{2014} = 15,9% x (83/19970) = 0,07%

TABLE I – MONTHLY HOUSEHOLD INCOME AVERAGE OF THE FIFTH AND THIRD QUINTILE (IN BRL)

Quintile	2008	2009	2011	2012	2013	2014
Fifth	1,379.10	1,410.46	1,482.53	1,578.50	1,640.25	1,800.75
Third	568.67	590.51	648.44	701.48	730.85	802.29

Source: IPEA (2014)

TABLE II – MINIMUM WAGE IN BRAZIL, 2008 - 2014

Year	Minimum Wage (BRL)
2008	R$ 415
2009	R$ 465
2011	R$ 540
2012	R$ 622
2013	R$ 678
2014	R$ 724

Source: CGU (2015)

5. RESULTS

5.1 OLS Regression

The regression to be estimated and checked about it robustness is :

$$TPBOLSA=\alpha_{+}\beta_{rendafam}X+\varepsilon_{i}$$

This formula was calculated for each year separately using the information available on ENADEs form. In order to verify the linearity between the two variables (TPBOLSA and RENDAFAM) existed it was created using the SPSS software, a scatterplot, a Normal P-Plot graphic to observe the behavior of the residuals in each sample. In this regression, it was

decided to use only two variables the parents' income (TPBOLSA) and the children's income (RENDAFAM) excluding other variables such as race, gender, and region of students' residence. Although we are aware that this exclusion may weaken the results achieved, the main concern while conducting this study was to link the pre-program income with the post-program income. As attested in 4.1 section, the sample size is of more than 2 million individuals that strengthen the validity of the tests made.

The variables are defined in Table III. The results for the OLS estimation for the different years are in Table IV.

In this section, it is explored the robustness of the sample. First, through an OLS Regression, it was measured the relationship between the income of parents and the final income of their children after graduation. For each analyzed year (2009, 2011, 2012, 2013, 2014). As the sample variables for each of those years vary a lot, it was decided to conduct the analyses for each year separately.

As dependent variable on the OLS regression, it was selected as in Chetty et al. (2017) the parent's household income from the ProUni participants (varying in two groups one for the up 1and a half minimum wage per family member and another for up to three minimum wages per family member. In order to minimize the residuals effects of this sample, it was decided to weight the OLS regression by the sample size for each year separately. This methodology supported the definition of the best -fit line and regression coefficient for each year analyzed.

The R^2 values in Model Summary table indicate how much of the total variation in the dependent variable (TPBOLSA) is explained by the independent variable (RENDFAM). The values for the whole sample vary between 0,007 to 0,018, which means that only a maximum of 1,8% of the variation in TPBOLSA is explained by RENDAFAM. The OLS results for each year gave us the following relationship equations:

$$TPBOLSA_{2014} = 1321{,}39 + 0{,}017(rendafam)$$

$$TPBOLSA_{2013} = 1236{,}11 + 0{,}023(rendafam)$$

$$TPBOLSA_{2012} = 998{,}57 + 0{,}025(rendafam)$$

$$TPBOLSA_{2011} = 997{,}95 + 0{,}019(rendafam)$$

$$TPBOLSA_{2009} = 830{,}35 + 0{,}019(rendafam)$$

Although the OLS regression results have indicated a *p value*< 0.05, and the sample had a normal distribution, the results for the analyzed years were not robust. There is a very week correlation between the predictor variable (ProUni students income) and the dependent variable (parent's household income).

The sample for all years had huge figures for residuals, the non-explained by the model part of the phenomena, and this undermined the validity of the test. Another obstacle to conducting this analysis lies in the fact that it was not possible to estimate *the precise* household income from parents and *the exact income* from the ProUni students at the end of the program. It was only possible to estimate *a range of earnings* to construct these two variables.

TABLE IV -VARIABLE DESCRIPTION

Variable Descriptions	
Variable	Description
TPBOLSA	kind of scholarship program received (ProUni partial or full scholarship)
(dependent variable)	(varies in two categories ProUni Full and ProUni partial holders)
RENDAFAM	Household income per family member
(independent variable)	(varying from 1,5 minimum wage to more than 30 minimum wages divided in seven categories with expectation of the year 2013 that only have one category)

2014 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,084[a]	,007	,007	468,94194

a. Predictors: (Constant), RENDAFAM

2014 ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41761257,231	1	41761257,231	189,905	,000[c]
	Residual	5859189898,258	26644	219906,542		
	Total	5900951155,489	26645			

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

c. Predictors: (Constant), RENDAFAM

2014 Coefficients[a,b]

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	1321,393	3,917		337,332	,000		
RENDAFAM	,017	,001	,084	13,781	,000	1,000	1,000

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

2014 Collinearity Diagnostics[a,b]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	RENDAFAM
1	1	1,680	1,000	,16	,16
	2	,320	2,291	,84	,84

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

2013 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,096[a]	,009	,009	442,71165

a. Predictors: (Constant), RENDAFAM

2013 ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21663422,115	1	21663422,115	110,531	,000[c]
	Residual	2344279538,742	11961	195993,607		
	Total	2365942960,857	11962			

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

c. Predictors: (Constant), RENDAFAM

2013 Coefficients[a,b]

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	1236,112	5,741		215,296	,000		
RENDAFAM	,023	,002	,096	10,513	,000	1,000	1,000

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

2013 Collinearity Diagnostics[a,b]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	RENDAFAM
1	1	1,709	1,000	,15	,15
	2	,291	2,424	,85	,85

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

2012 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,113[a]	,013	,013	371,53754

a. Predictors: (Constant), RENDAFAM

2012 ANOVA[a,b]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	81165838,914	1	81165838,914	587,987	,000[c]
Residual	6274338695,270	45453	138040,145		
Total	6355504534,184	45454			

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

c. Predictors: (Constant), RENDAFAM

2012 Coefficients[a,b]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	998,575	3,084		323,752	,000		
	RENDAFAM	,025	,001	,113	24,248	,000	1,000	1,000

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

2012 Collinearity Diagnostics[a,b]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	RENDAFAM
1	1	1,825	1,000	,09	,09
	2	,175	3,230	,91	,91

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

2011 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,121[a]	,015	,014	366,52136

a. Predictors: (Constant), RENDAFAM

2011 ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36379254,743	1	36379254,743	270,804	,000[c]
	Residual	2467787340,892	18370	134337,906		
	Total	2504166595,634	18371			

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

c. Predictors: (Constant), RENDAFAM

2011 Collinearity Diagnostics[a,b]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	RENDAFAM
1	1	1,760	1,000	,12	,12

	2	,240	2,708	,88	,88

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by AMOSTRA

2009 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,133[a]	,018	,018	301,66911

a. Predictors: (Constant), RENDAFAM

2009 ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33519423,155	1	33519423,155	368,328	,000[c]
	Residual	1856304746,280	20398	91004,253		
	Total	1889824169,435	20399			

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by amostra

c. Predictors: (Constant), RENDAFAM

2009 Coefficients[a,b]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	830,350	3,151		263,510	,000		
	RENDAFAM	,019	,001	,133	19,192	,000	1,000	1,000

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by amostra

2009 Collinearity Diagnostics[a,b]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Variance Proportions RENDAFAM
1	1	1,742	1,000	,13	,13
	2	,258	2,599	,87	,87

a. Dependent Variable: TPBOLSA

b. Weighted Least Squares Regression - Weighted by amostra

5.2 - Mobility Index

The calculation of the success rate, upward mobility, is given by the number of ProUni's participants, in the top income quintile (Q5) divided by the income of the parents in the lowest quintile (Q1). This method of calculation was already mentioned by Bustelo et al. (2017) and by Chetty et al (2017). However the index used in the USA'study cannot be perfectly transposed for the Brazilian reality, given data missings.

To compare our results with those obtained by Chetty et al. (2017), we define upward mobility as the percentage of students who are enrolled in the university *in a low-income bracket* according to the national distribution of family income, and at the end of their study period attain to achieve the *top quintile*, again measured in relation to their peers in the national distribution of earnings. It is important to clarify that the methodology applied does not attest the causal effects on students of receiving ProUni's aid, but rather is a descriptive analysis of the intergenerational mobility associated with the attendance of university education.

Unlike Chetty et al. (2017), it was not calculated the program effectiveness at social mobility since the data about ProUni's coverage of poor students could not be inferred. Whereas the transition mobility measures the effectiveness of upward mobility from the perspective of a low-income individual, the college mobility index assesses the overall mobility of low-income students realized by the university.

From the first analysis using a more strict concept of mobility (using the highest quintile parameter) the following results were found for ProUni's full scholarships: 2009 = 0,01%, 2011 = 0,4%, 2012= 0,24%,2013=0,31%, 2014=0,07%.

Using a broader concept of mobility (just considering the existence -or not- of upward income) the results for ProUni's full scholarships were: 2009= 0,463%, 2011 = 3,443%, 2012= 2,956%, 2013= 0,785%, 2014 = 0,271%.

However, when compared to the results of the ProUni's half scholarships, we can infer that higher parents earnings are related to higher success rates in reaching the highest-earning brackets:

2009= access (52,70%)* (8/6048) =0,07%,

2011= access (48,50%) * (46/5630) = 0,396,

2012 = access (47%)* (81/15181) = 0,251%,

2013= access (42,9%)* (24/ 4518)= 0,228%,

2014 = access (40,9%)* (31/9625) = 0,132%

The income, as previously referred, consider the participants in the program 4 years after starting the course. However, there are several limitations to analyze the income of participants *soon after* having obtained their Bachelor's degree (for example years 2009 for those who started in year 2005). First, the wage they earn as soon as they finish College in general lines does not reflect a full professional salary, so it can be inferred that this post-graduation salary is smaller than the expected for their career path. A second limitation was already mentioned, but it is important to be stressed again: that it is almost impossible to disaggregate the student's income from the income of their parents. In the next subsection, it will be presented the results from the impact evaluation.

5.2 – Impact Evaluation

To better evaluate the impact and effectiveness of the ProUni program, it was applied the Dhailiwal et al. (2012) model. Therefore, it was separately calculated the impact for each year, taking into account the broader upward intergenerational mobility, already referred to in Section 4 - Data leading to the following results. To calculate the impact per unit it was used the average of the social mobility index for the five years analyzed (totaling: 0,2048%)

The total impact of the program(I)= Impact (per unit)x sample size x Program duration:

I = 0,2048% x 130123 x 5 =1332,52

Total impact for 5 years of program = 5334,092

The result indicates a significant impact of the program on promoting intergenerational mobility; this impact could be significantly higher if the earnings from ProUni's scholars could be traced for ten years over University, as Chettey et al. (2017) aimed to do on their work. Further, when comparing the costs of ProUni's against the investments made on the public higher education institutions, it is observed that ProUni is a cost-effective program. As illustrated by next tables (Table VI to Table X), the associated costs with public university students by far exceed the ProUni's costs.

For comparison reasons, the results obtained by Bustelo et al (2017), where they analyzed 9,513 students attending UFPE during 2005and 2006, were transposed to the impact formula:

Impact $_{UFPE}$ = 0,028X9513x2= 532,728

The following tables present the general costs and impacted the population range of the UFPE' and PROUNI's program. As expressed in the following tables the ProUni program with an average cost (from 2009 to 2013) of 624,6 millions BRL generates a impact of 1332,52 in contrast UFPE (a public university) with an average cost (from 2009 to 2013) of 530,14 millions BRL generates an impact of 532,72. This means that ProUni is more efficient than UFPEs in promoting intergenerational mobility.

TABLE VI – COST OF PROUNI PROGRAM

Year	Tax Exemption (in BRL, approximately values)
2009	502.000.000
2010	625.000.000
2011	511.000.000
2012	734.000.000
2013	751.000.000

Source: CGU (2015)

TABLE VII – COST OF PROUNI PER STUDENT

Year	Granted Scholarships	Yearly cost per student
2006	109009	R$ 3.390,95
2008	124607	R$ 3.360,51
2010	152697	R$ 4.777,86
2012	379330	R$ 1.996,41

Source: Costa&Ferreira (2017)

TABLE VIII – HISTORY OF PUBLIC INVESTMENT IN HIGHER EDUCATION IN BRAZIL PER STUDENT (2000-2013)

Year	Student Cost in Higher Education (R$) per year
2000	R$ 8.849,00
2001	R$ 9.416,00
2002	R$ 9.813,00
2003	R$ 9.372,00
2004	R$ 9.547,00
2005	R$ 10.872,00
2006	R$ 11.609,00
2007	R$ 12.813,00
2008	R$ 12.542,00
2009	R$ 14.694,00
2010	R$ 16.541,00
2011	R$ 18.770,00
2012	R$ 18.044,00
2013	R$ 21.383,00

Source: Costa & Ferreira (2017)

TABLE IX – UFPE HIGHER EDUCATION DEDICATED BUDGET AND NUMBER OF ENROLLED HIGHER EDUCATION STUDENTS

Year	UFPE's Budget	Enrolled H.E. students

2005	258.181.937	
2006	225.505.544	
2009	551.997.643	36.659
2010	590.651.802	39.293
2011	443.892.314	38.914
2012	546.435.716	40.265
2013	517.729.627	40.411
2014	647.534.129	43.329

Source: Based on UFPE (2015), Brasil (2008), Brasil (2010), Brasil (2011), Brasil (2012), Brasil (2013) and Brasil (2014).

TABLE X – NUMBER OF PROUNI'S SCHOLARSHIPS

Year	Full Scholarship	Partial Scholarships	Total
2005	71900	40400	112300
2006	98700	40000	138700
2007	97600	66200	163800
2008	99500	125500	225000
2009	153100	94500	247600
2010	125900	115400	241300
2011	129700	124900	254600
2012	150900	133800	284700
2013	164400	88000	252400

2014	205200	101500	306700
2015	204600	124500	329100

Source: Gambier et al (2019).

6. CONCLUSION AND FUTURE RESEARCH

This work aimed to answer the general question: "Is the ProUni program an effective tool to increase intergenerational social mobility?". Constrained by the data availability we studied a specific period of PROUNI using an OLS model, the Mobility Index and the Impact evaluation.

First, the OLS regression results were inconclusive to directly attest if there is a relationship between participating in the program and earn top quintile wages. However, one of the main limitations for running the test laid down in the lack of good identified and detailed data about the precise pre and post-program income. Also, this study was not able *to trace the earnings of ProUni participants* for a long term period after their graduation.

Secondly, the mobility index calculated for the selected years pointed to a positive effect on the achievement of higher earnings after participating in the ProUni program. The overall impact of ProUni's program leads to a solid, cost-effective outcome. Especially when compared to the public's investments on the students from Public Universities, as illustrated in Section 5. However this point needs a more deep research in the future in order to discuss the advantages and disadvantages of this kind of Program (compared with other programs that have as goal promoting the access and success of the low income students to University level education.) and the possibility of applying it in different contexts.

Some critical observations must be made to this study, linked with avenues for future research. During the research, many theoretical and empirical literature about the access to the Higher Education were found linking race and gender characteristics to the probability to pursue University studies. From a broader point of view, in Brazil, the race is strongly connected with income unequal distribution. Data from PNAD 2018 indicates that the black community in Brazil still faces disadvantages to access good quality education. In this paper, there was no intention to explore this specific topic, although it is a crucial debate to be made

and a line of research to develop. For example, the Deming and Dynarskil (2009) findings point to the difference between the probability of accessing to Higher Education between Whites and African-Americans trace back to their school's performance, and even for those top-rated students the socio-economic inequality still plays a vital role in their likelihood to complete their higher education studies.74% of the Scholastic Assessment Test (SAT) high scores from upper-income families complete college education against 29% of those coming from low-income families. It would be interesting to explore in future researches if this is also the case for the African Brazilian population.

Also, Busso et al (2017) draw attention to another point not covered in our study: the negative return of education. According to them, the recent expansion of private Universities in Brazil could be leading to a decrease in Higher Education quality, as already seen in other Latin American countries: "studies find that the private return to graduating from college is negative for approximately 30% of students in Colombia and 20% of students in Chile." (Busso et al. 2017, p. 14). This is of particular importance for the ProUni program because many of the private Universities in Brazil, especially those that emerged in the '90s, are not fully committed to producing quality research or promoting top academic students.

The importance of our study is to better inform policymakers. The computed upward mobility rate equips them with information to decide how to maximize the chance of low-income students to reach the highest-earning levels. Some additional research could also be done to precisely estimate the penetration of ProUni among the first quintile of the population income distribution.

In fact, good quality education in Brazil is still a privilege, as it can be noted from Figures 4 and 5. More than 60% of Higher Education students are from the top two quintiles of the income distribution (Q4 and Q5).

FIGURE 4- INCOME DISTRIBUTION OF PUBLIC UNIVERSITY STUDENTS (PER CAPITA HOUSEHOLD INCOME)

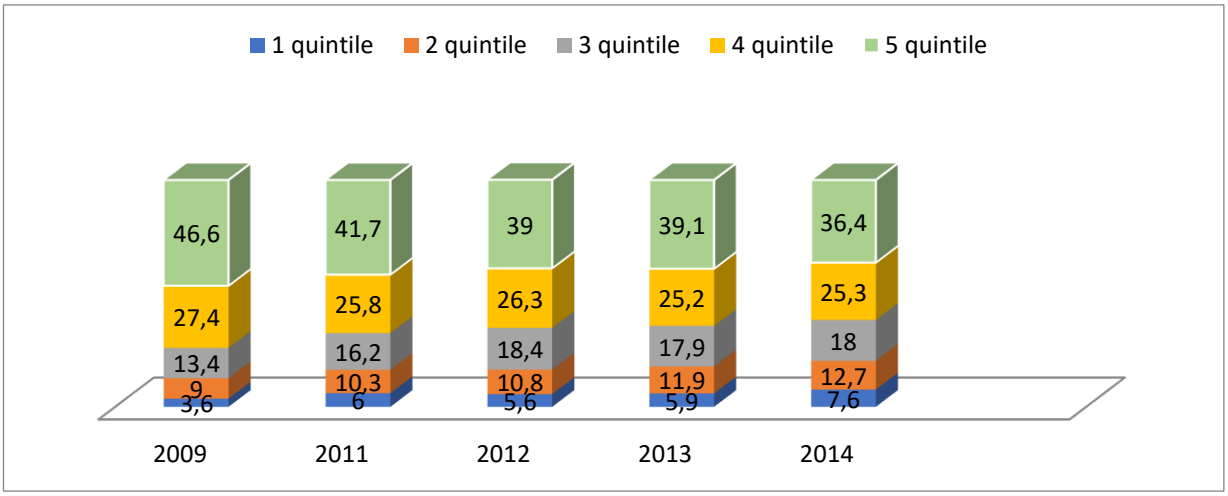
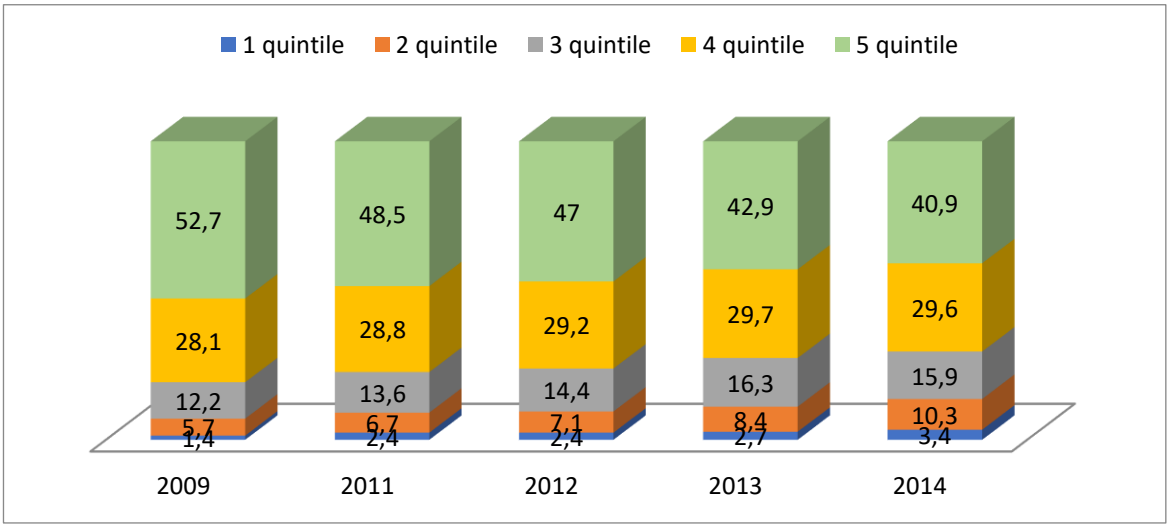


FIGURE 5- INCOME DISTRIBUTION OF PRIVATE UNIVERSITY STUDENTS (PER CAPITA HOUSEHOLD INCOME)



Source: IBGE, 2014

Although the limitation imposed by the lack of data to conduct a more complete, complex and robust analysis of the ProUni program, it is a crucial program as already mentioned, not only in view with its focus on public schools alumni's but also because its cost-effectiveness characteristics which promotes positive outcomes for the grant holders, especially for those students whose families earn up to one minimum and a half wage per member (are at the bottom of the income distribution).

ANNEX

TABLE I- INCOME COMPOSITION FOR INDEX CALCULUS

2009		
		N
ProUni (full scholarship)		*15,191*
Main responsible for Family earnings		1,335
20% top distribution		
Household members (total =1)	Income range from (More than 4,5 Min. Wage)	6
Household members (total =2)	Income range from (More than 10 Min Wage)	3
Household members (total = 3)	Income range from (More than 30 Min Wage)	0
Household members (total = 4)	Income range from (More than 30 Min. Wage)	0
Household members (total = 5)	Income range from (More than 30 Min Wage)	1
Household members (total = 6)	Income range from (More than 30 Min. Wage)	0
Household members (total = 7)	Income range from (More than 30 Min. Wage)	0
Upward Mobility General		
Household members (total =1)	Income range from (More than 1,5 Min. Wage)	21
Household members (total =2)	Income range from (More than 3 Min Wage)	207
Household members (total = 3)	Income range from (More than 4,5 Min Wage)	147
Household members (total = 4)	Income range from (More than 4,5 Min. Wage)	168
Household members (total = 5)	Income range from (More than 6 Min Wage)	19
Household members (total = 6)	Income range from (More than 6 Min. Wage)	14

Household members (total = 7)	Income range from (More than 10 Min. Wage)	1
ProUni (partial scholarship)		*6048*
Main responsible for Family earnings		443
Household members (total =1)	Income range from (More than 4,5 Min. Wage)	4
Household members (total =2)	Income range from (More than 10 Min Wage)	3
Household members (total = 3)	Income range from (More than 30 Min Wage)	0
Household members (total = 4)	Income range from (More than 30 Min. Wage)	0
Household members (total = 5)	Income range from (More than 30 Min Wage)	1
Household members (total = 6)	Income range from (More than 30 Min. Wage)	0
Household members (total = 7)	Income range from (More than 30 Min. Wage)	0

Source: INEP (2009)

2011		
		N
ProUni (full scholarship)		13139
Main responsible for Family earnings		n/a
	20% top distribution	
Household members (total =1)	Income range from (More than 3 Min. Wage)	244
Household members (total =2)	Income range from (More than 6 Min Wage)	113
Household members (total = 3)	Income range from (More than 10 Min Wage)	26
Household members (total = 4)	Income range from (More than 30 Min. Wage)	0
Household members (total = 5)	Income range from (More than 30 Min Wage)	1
Household members (total = 6)	Income range from (More than 30 Min. Wage)	0
Household members (total = 7)	Income range from (More than 30 Min. Wage)	0

	Upward Mobility General	
Household members (total =1)	Income range from (More than 1,5 Min. Wage)	1041
Household members (total =2)	Income range from (More than 3 Min Wage)	1486
Household members (total = 3)	Income range from (More than 4,5 Min Wage)	433
Household members (total = 4)	Income range from (More than 4,5 Min. Wage)	345
Household members (total = 5)	Income range from (More than 10 Min Wage)	21
Household members (total = 6)	Income range from (More than 10 Min. Wage)	0
Household members (total = 7)	Income range from (More than 10 Min. Wage)	0
ProUni (partial scholarship)		*5630*
Main responsible for Family earnings		n/a
Household members (total =1)	Income range from (More than 4,5 Min. Wage)	31
Household members (total =2)	Income range from (More than 10 Min Wage)	14
Household members (total = 3)	Income range from (More than 30 Min Wage)	0
Household members (total = 4)	Income range from (More than 30 Min. Wage)	0
Household members (total = 5)	Income range from (More than 30 Min Wage)	1
Household members (total = 6)	Income range from (More than 30 Min. Wage)	1
Household members (total = 7)	Income range from (More than 30 Min. Wage)	0

Source: INEP (2011)

2012		
		N
ProUni (full scholarship)		31936
Main responsible for Family earnings		n/a
	20% top distribution	
Household members (total =1)	Income range from (More than 3 Min. Wage)	331
Household members (total =2)	Income range from (More than 6 Min Wage)	178
Household members (total = 3)	Income range from (More than 10 Min Wage)	27

Household members (total = 4)	Income range from (More than 30 Min. Wage)	0
Household members (total = 5)	Income range from (More than 30 Min Wage)	1
Household members (total = 6)	Income range from (More than 30 Min. Wage)	1
Household members (total = 7)	Income range from (More than 30 Min. Wage)	0
	Upward Mobility General	
Household members (total =1)	Income range from (More than 1,5 Min. Wage)	2644
Household members (total =2)	Income range from (More than 3 Min Wage)	1229
Household members (total = 3)	Income range from (More than 4,5 Min Wage)	745
Household members (total = 4)	Income range from (More than 4,5 Min. Wage)	1462
Household members (total = 5)	Income range from (More than 6 Min Wage)	446
Household members (total = 6)	Income range from (More than 10 Min. Wage)	30
Household members (total = 7)	Income range from (More than 10 Min. Wage)	0
ProUni (partial scholarship)		*15181*
Main responsible for Family earnings		n/a
Household members (total =1)	Income range from (More than 4,5 Min. Wage)	61
Household members (total =2)	Income range from (More than 10 Min Wage)	14
Household members (total = 3)	Income range from (More than 30 Min Wage)	1
Household members (total = 4)	Income range from (More than 30 Min. Wage)	1
Household members (total = 5)	Income range from (More than 30 Min Wage)	1
Household members (total = 6)	Income range from (More than 30 Min. Wage)	2
Household members (total = 7)	Income range from (More than 30 Min. Wage)	1

Source: INEP (2012)

2013
N

ProUni (full scholarship)		8885
Main responsible for Family earnings		631
	20% top distribution	
Household members (total =n/a)	Income range from (More than 3 Min. Wage)	169
	Upward Mobility General	
Household members (total =n/a)	Income range from (More than 1,5 Min. Wage)	428
ProUni (partial scholarship)		*4518*
Main responsible for Family earnings		244
Household members (total =1)	Income range from (More than 4,5 Min. Wage)	24

Source: INEP (2013)

2014		
		N
ProUni (full scholarship))		19970
Main responsible for Family earnings		2641
	20% top distribution	
Household members (total =1)	Income range from (More than 3 Min. Wage)	23
Household members (total =2)	Income range from (More than 6 Min Wage)	24
Household members (total = 3)	Income range from (More than 10 Min Wage)	32
Household members (total = 4)	Income range from (More than 10 Min. Wage)	4
Household members (total = 5)	Income range from (More than 30 Min Wage)	0
Household members (total = 6)	Income range from (More than 30 Min. Wage)	0
Household members (total = 7)	Income range from (More than 30 Min. Wage)	0
	Upward Mobility General	
Household members (total =1)	Income range from (More than 1,5 Min. Wage)	64
Household members (total =2)	Income range from (More than 3 Min Wage)	143
Household members (total = 3)	Income range from (More than 4,5 Min Wage)	83

Household members (total = 4)	Income range from (More than 4,5 Min. Wage)	26
Household members (total = 5)	Income range from (More than 6 Min Wage)	22
Household members (total = 6)	Income range from (More than 10 Min. Wage)	2
Household members (total = 7)	Income range from (More than 10 Min. Wage)	0
ProUni (partial scholarship)		*9625*
Main responsible for Family earnings		984
Household members (total =1)	Income range from (More than 4,5 Min. Wage)	6
Household members (total =2)	Income range from (More than 6 Min Wage)	24
Household members (total = 3)	Income range from (More than 10 Min Wage)	1
Household members (total = 4)	Income range from (More than 30 Min. Wage)	0
Household members (total = 5)	Income range from (More than 30 Min Wage)	0
Household members (total = 6)	Income range from (More than 30 Min. Wage)	0
Household members (total = 7)	Income range from (More than 30 Min. Wage)	0

Source: INEP (2014)

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